AMENDMENTS TO THE SPECIFICATION

In the Specification

Please amend the specification by replacing the following numbered paragraphs from the substitute specification filed January 24, 2002.

23. FIG. ~~6A~~ 6a. Results of CTL assays conducted on splenocytes harvested from BALB/c mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK^- vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 19.

24. FIG. ~~6B~~ 6b. Results of CTL assays conducted on splenocytes harvested from BALB/c mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK^- vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 18.

25. FIG. ~~6C~~ 6c. Results of CTL assays conducted on splenocytes harvested from BALB/c mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK^- vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 20.

26. FIG. ~~6D~~ 6d. Results of CTL assays conducted on splenocytes harvested from BALB/c mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK^- vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 12.

27. FIG. ~~6E~~ 6e. Results of CTL assays conducted on splenocytes harvested from CBA mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK^- vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 13.

28. FIG. ~~6F~~ 6f. Results of CTL assays conducted on splenocytes harvested from CBA mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK⁻ vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 3.

29. FIG. ~~6G~~ 6g. Results of CTL assays conducted on splenocytes harvested from C57BL/6 mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK⁻ vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 1.

30. FIG. ~~6H~~ 6h. Results of CTL assays conducted on splenocytes harvested from C57BL/6 mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK⁻ vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 14.

31. FIG. ~~6I~~ 6i. Results of CTL assays conducted on splenocytes harvested from C57BL/6 mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK⁻ vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 15.

32. FIG. ~~6J~~ 6j. Results of CTL assays conducted on splenocytes harvested from C57BL/6 mice vaccinated with recombinant vaccinia including the DNA insert of FIG.5 (open squares), no peptide control (open triangles), or bulk splenocytes from ~~TK-~~ TK⁻ vaccinated mice (open circles) and restimulated with the peptide of SEQ ID NO: 5.

34. FIG. 8a. is a graphical representation showing the results of DNA vaccination of three six-week old BALB/c mice (Mouse 1, Mouse 2, and Mouse 3) with the plasmid pRSVGM/CMVMP (i.e. a plasmid co-expressing the murine polytope with GM-CSF). Mice were given primary vaccinations and booster injections three weeks later, sacrificed at 8 weeks from the primary vaccination and their spleens removed. Splenocytes were isolated and cultured with peptide effectors as follows: Flu NP, SEQ ID NO: 19; PB csp,

SEQ ID NO: 18; MCMV NP, SEQ ID NO: 20; and LCMV NP, SEQ ID NO: 12. These bulk effectors were then used in standard chromium release assays against P815 cells coated with the peptide corresponding to the epitope presented by BALB/c mice. Effector target ratios used were 50:1 (hatched boxes), 10:1 (open boxes) or 2:1 (filled boxes). Percentage specific lysis is indicated on the ordinate. ~~different plasmids in BALB/c mice~~.

FIG. 8b. is a graphical representation showing the results of DNA vaccination of three six-week old BALB/c mice (Mouse 4, Mouse 5, and Mouse 6) with the plasmid pSTMPDV expressing the murine polytope. Mice were given primary vaccinations and booster injections three weeks later, sacrificed at 8 weeks from the primary vaccination and their spleens removed. Splenocytes were isolated and cultured with peptide effectors as follows: Flu NP, SEQ ID NO: 19; PB csp, SEQ ID NO: 18; MCMV NP, SEQ ID NO: 20; and LCMV NP, SEQ ID NO: 12. These bulk effectors were then used in standard chromium release assays against P815 cells coated with the peptide corresponding to the epitope presented by BALB/c mice. Effector target ratios used were 50:1 (hatched boxes), 10:1 (open boxes) or 2:1 (filled boxes). Percentage specific lysis is indicated on the ordinate.

FIG. 8c. is a graphical representation showing the results of DNA vaccination of three six-week old BALB/c mice (Mouse 7, Mouse 8, and Mouse 9) with the plasmid pDNAVacc, a plasmid control that does not express the murine polytope. Mice were given primary vaccinations and booster injections three weeks later, sacrificed at 8 weeks from the primary vaccination and their spleens removed. Splenocytes were isolated and cultured with peptide effectors as follows: Flu NP, SEQ ID NO: 19; PB csp, SEQ ID NO: 18; MCMV NP, SEQ ID NO: 20; and LCMV NP, SEQ ID NO: 12. These bulk effectors were then used in standard chromium release assays against P815 cells coated with the peptide corresponding to the epitope presented by BALB/c mice. Effector target ratios used were 50:1 (hatched boxes), 10:1 (open boxes) or 2:1 (filled boxes). Percentage specific lysis is indicated on the ordinate.

35. FIG. 9a ~~FIGS. 9-28.~~ provides graphical representations showing lysis ~~Lysis~~ of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia

immunized (IP) BALB/c mice. ~~Splenocytes from strains BALB/c, (FIGS. 9-20), and C56BL/6 (FIGS.21-28)~~ Mice had their spleens removed and splenocytes were isolated and restimulated with the ~~following~~ peptides~~: FIGS. 9 and 10,~~ set forth in SEQ ID NO: 19~~; FIGS. 11 and 12, SEQ ID NO: 18; FIGS. 13 and 14, SEQ ID NO: 20; FIGS. 15 and 16, SEQ ID NO: 12; FIGS. 17 and 18, SEQ ID NO: 13; FIGS. 19 and 20, SEQ ID NO: 3; FIGS. 21 and 22, SEQ ID NO: 1; FIGS. 23 and 24, SEQ ID NO: 14; FIGS. 25 and 26, SEQ ID NO: 16; FIGS. 27 and 28, SEQ ID NO: 5~~. Left-hand panel (A): The effectors ~~were~~ was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (A^1): The effector was used in standard CTL assays against influenza virus-infected target cells (circles) or using allantoic acid as a negative control (triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel. ~~in FIGS. 9, 11, 13, 15, 17, 19, 21, 23, 25, and 27), against virus-infected targets (FIGS. 10, 12, 14, 16, 18, 20, 22, 24, and 28), or against tumor targets (FIG. 26). Virus-infected targets were either infected with allantoic fluid as negative control (FIGS. 10 and 18), with human polytope vaccinia (Vacc Nu PT) as the negative control (FIGS. 12, 14, 16, 20, 22, 24 and 28), or the EL-4 line served as a control (FIG. 26).~~

FIG. 9b provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 18. Left-hand panel (B): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (B^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9c provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with

the peptide set forth in SEQ ID NO: 20. Left-hand panel (C): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (C^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9d provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 12. Left-hand panel (D): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (D^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9e provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 13. Left-hand panel (E): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (E^1): The effector was used in standard CTL assays against influenza virus-infected target cells (circles) or using allantoic acid as a negative control (triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9f provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 3. Left-hand panel (F): The effector was then used in

standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (F^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9g provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 1. Left-hand panel (G): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (G^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9h provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 14. Left-hand panel (H): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (H^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9i provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 16. Left-hand panel (I): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or

no peptide controls (circles). Right-hand panel (I^1): The effector was used in standard CTL assays against tumor target cells (Vacc Mu PT; circles; and EG7, diamonds), or using a human polytope vaccinia (Vacc Hu PT; triangles) or the EL4 line (squares) as a negative control. Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

FIG. 9j provides graphical representations showing lysis of target cells presenting 10 different epitopes by splenocytes from murine polytope vaccinia immunized (IP) BALB/c mice. Mice had their spleens removed and splenocytes were isolated and restimulated with the peptide set forth in SEQ ID NO: 5. Left-hand panel (J): The effector was then used in standard CTL assays against peptide-coated target cells using the same peptide (squares) or no peptide controls (circles). Right-hand panel (J^1): The effector was used in standard CTL assays against virus-infected target cells (Vacc Mu PT; circles) or using a human polytope vaccinia as a negative control (Vacc Hu PT; triangles). Effector: target ratio is indicated on the x-axis. Percentage specific lysis is indicated on the ordinate in each panel.

47. **Cytotoxic T cell assays**. Splenocytes were harvested from the vaccinated mice 3 weeks post vaccination and restimulated with the appropriate peptides (1μg/ml) in vitro[16]. No peptide were used for restimulations as negative controls. After 7 days of culture the restimulated bulk effectors were harvested and used in a 5 hour, ^{51}Cr-release assays. The targets used in these assays were ConA blasts generated from each of the strains coated with one of the peptides presented by that strain. Three effector to target ratios were used: 50:1, 10:1 and 2:1. The ~~the~~ results are shown in FIGS. ~~6A-6J~~ 6a through 6j.

60. The results of these experiments are shown in ~~Fig. 8~~ FIGS. 8a through 8c.

68. The results are shown in FIGS. ~~9-28~~ 9a through 9j.